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| **The Meeting of the SATRC Working Group**  **on Spectrum** | **SAPIX-SPEC1/ OUT-07** |
| 7 – 9 May 2024, Lalitpur, Nepal | 9 May 2024 |

Working Group on Spectrum

**QUESTIONNAIRE ON**

**BACKHAUL INFRASTRUCTURE READINESS AND REQUIREMENTS FOR**

**5G DEPLOYMENT IN SATRC COUNTRIES**

**1. BACKGROUND AND PURPOSE**

High speed backhaul is a critical component of the 5G network infrastructure. 5G networks promise higher speeds, lower latency, and increased capacity compared to previous generations of mobile networks. To deliver on these promises, a robust and efficient backhaul network is essential to connect the 5G cell sites to the core network. It is not just a supporting component but an enabler that ensures the overall success of 5G deployments and delivery of advanced services and applications. As 5G continues to evolve and expand, the importance of a robust and efficient backhaul network will only become more pronounced.

Due to limited fibre infrastructure, geographical diversity and other associated challenges, backhaul for 5G can indeed pose challenges for SATRC countries. In this context, the objective of the study is to analyse the status of backhaul infrastructure, backhaul requirements, challenges, available solutions, regulatory and spectrum considerations, mechanism for backhaul spectrum assignment and strategies adopted by SATRC member countries.

**2. SCOPE**

The scope of the study will include the following:

* Current backhaul infrastructure status in SATRC Countries
* Backhaul requirements for urban, suburban and rural areas
* Adopted solution mix of backhaul technologies for 5G launch
* Challenges and Barriers
* Strategies Adopted to overcome challenges
* Regulatory and spectrum considerations
* Mechanism for backhaul spectrum assignment
* Future-Proofing Backhaul Networks

**3. METHODOLOGY FOR CARRYING OUT THE STUDY**

The study will be carried out by the Experts of Working Group on Spectrum nominated by the SATRC Members. Therefore, in order to pursue the study, the following questions have been developed to obtain necessary information from the SATRC Members on the subject matter of the Work Item. Based on the information, the Experts will develop a draft Report on the Work Item for consideration of SATRC-26.

**4. QUESTIONS**

1. Please provide details of allocated bands & bandwidths of cellular backhaul spectrum in your country?
2. Details of backhaul spectrum being used by cellular operators in your country:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Operators | Spectrum  Band | Total  Channels | Bandwidth | Number of Channels assigned | Assignment Nature (Point 2 Point Links)  Nationwide/ Regional basis | Remarks |
| Operator 1 |  |  |  |  |  |  |
| Operator 2 |  |  |  |  |  |  |

1. Status of current Cell sites connectivity in your county:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operator | % of Cell Sites with Fiber Connectivity | % of Cell Sites with MW Connectivity | % of Cell Sites with VSAT Connectivity | % of Cell Sites with Redundant links |
| Operator 1 |  |  |  |  |
| Operator 2 |  |  |  |  |

1. Are there any policies supporting already assigned backhaul carrier aggregation of different bands?
2. Are only hub sites connected to fiber or otherwise also? What percentage of hub sites are connected to Fiber and what is the percentage of other sites, apart from hub sites, connected to Fiber?
3. What is the current average backhaul capacity per base station, considering both wireline and wireless mediums, specifically in urban areas within your country? Is it sufficient to support the requirements of 5G technology?
4. For 5G, what are the backhaul infrastructure solutions implemented by your country. For wireless solutions, which bands are specifically used for 5G wireless backhaul links (Traditional, V-band, E-band, etc.)?
5. What are the primary barriers to backhaul deployment in your country, such as deployment cost, lack of infrastructure, Right of Way issues, complicated approval procedures, geographical/terrain challenges, or other constraints?
6. Are there any license requirements/limitations for backhaul spectrum assignment for 5G? If yes, what kind of licenses are issued in your country i.e. Per Link License /Authorization/ Approval, Block License (for spectrum blocks), Shared Spectrum Access, Use of Unlicensed Bands etc.
7. Are there any plans in place to invest in upgrading or expanding the backhaul infrastructure to support 5G deployment, and if so, what is the timeline for these initiatives?
8. What percentage of sites have solar/renewable energy power solution? Are there any future plans for the same?
9. Are there any partnerships or collaborations with local governments, organizations, or international agencies to address backhaul challenges and facilitate 5G rollout in underdeveloped regions?
10. What strategies are being considered to minimize the cost of backhaul deployment in economically constrained areas, such as leveraging shared infrastructure or adopting cost-effective technologies?
11. Are there any spectrum allocation policies in your country specific to E-band, D-band or W-band backhaul frequencies?
12. How will the deployment of 5G backhaul contribute to broader socio-economic development goals in underdeveloped countries, such as improving access to education, healthcare, and economic opportunities?

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